This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A method for determining the ~~level of resistance of HIV~~ resensitization of HIV-1 to ~~an HIV RT inhibitor~~AZT, comprising:

a) providing a reaction well with the ~~reaction products of substances~~ following reaction components comprising:

i) at least one template for an [[HIV]]HIV-1 RT enzyme[[,]];

ii) at least one primer[[,]];

iii) at least one detectable dNTP substrate[[,]];

iv) ~~at least one HIV RT inhibitor~~AZT[[,]]; and

v.) at least one ribonucleotide chosen from ATP or GTP, or at least one pyrophosphate;

b) performing an enzymatic kinetics assay that permits the measurement of multiple chain termination events by adding to the reaction well an [[HIV]]HIV-1 RT enzyme chosen from a wild-type RT enzyme, and a mutant selected from the group consisting of ~~M41L / T215Y;~~ M41L / M184V / T215Y; ~~M41L / D67N / K70R / T215Y;~~ M41L / D67N / K70R / M184V / T215Y; M41L / D67N / K70R / M184V / L210W / R211K / L214F / T215Y; T69S-SS; T69S-SG; T69S-AG; and T69S-SS / T215Y, wherein said numbering scheme is based upon the prototypical isolate HIV-1_{BH-10},

wherein said [[HIV]]HIV-1 RT enzyme incorporates the at least one detectable dNTP substrate or ~~at least one HIV RT inhibitor~~ AZT into said template;

c) determining RT activity by measuring the amount of the detectable dNTP substrate incorporated into the template;

d) repeating steps b) and c) replacing the wild-type RT enzyme with a mutant RT enzyme; and

e) determining the ~~level of resistance of HIV~~ resensitization of HIV-1 to ~~the HIV RT inhibitor~~ AZT by comparing the RT activity of the wild-type RT enzyme with the RT activity of the mutant RT enzyme;

wherein the ~~level of resistance of HIV~~ resensitization of HIV-1 to ~~an HIV RT inhibitor~~ AZT is determined.

2. (Original) The method of claim 1, wherein the template is bound to the reaction well and is chosen from poly-rA or a heteropolymer RNA or DNA.

3. (Original) The method of claim 1, wherein the primer is chosen from oligo-dt or a primer that is complementary to the heteropolymer template.

4. (Original) The method of claim 1, wherein the detectable dNTP substrate is chosen from a radioactive labeled dNTP.

5. (Original) The method of claim 1, wherein the detectable dNTP substrate is capable of being detected by fluorescence, luminescence, or absorption spectrometry.

6. (Original) The method of claim 1, wherein the detectable dNTP substrate binds to an optical tracer or a radioactive labeled tracer.

7. (Original) The method of claim 6, wherein the optical tracer is capable of being detected by fluorescence, luminescence, or absorption spectrometry.

8. (Original) The method of claim 6, wherein the detectable dNTP precursor is bromo-deoxyuridine-triphosphate.

9. (Original) The method of claim 7, wherein the optical tracer is a monoclonal anti-BrdU antibody, conjugated to alkaline phosphatase.

10. (Currently amended) The method of claim 1, wherein the [[HIV]]HIV-1 RT inhibitor is chosen from AZT, 3TG, ddI, ddC, d4T, and abacavir.

11. (Currently amended) The method of claim 1, wherein the [[HIV]]HIV-1 RT inhibitor is chosen from a nucleoside or a nucleoside analog.

12. (Currently amended) The method of claim 11, wherein the [[HIV]]HIV-1 RT inhibitor is a triphosphate form of the [[HIV]]HIV-1 RT inhibitor.

13. (Cancelled)

14. (Currently amended) The method of claim 1, wherein the HIV-1 mutant RT enzyme contains an ~~insertional mutation at nucleotide triplet encoding codon 69~~amino acid insertion between codons 69 and 70.

Claims 15-19 cancelled

20. (Currently amended) A method for determining the effect of at least one mutation in an [[HIV]]HIV-1 RT enzyme on the ~~resistance of HIV~~ resensitization of HIV-1 to ~~an HIV RT inhibitor~~AZT, comprising:

a) providing a reaction well with the ~~reaction products of substances~~ following reaction components comprising:

i) at least one template for an [[HIV]]HIV-1 RT enzyme[[,]];

ii) at least one primer[[,]];

iii) at least one detectable dNTP substrate[[,]];

iv) ~~at least one HIV RT inhibitor~~AZT[[,]]; and

v.) at least one ribonucleotide chosen from ATP or GTP, or at least one pyrophosphate;

b) performing an enzymatic kinetics assay that permits the measurement of multiple chain termination events by adding to the reaction well an HIV RT enzyme, and a mutant selected from the group consisting of ~~M41L / T215Y;~~ M41L / M184V / T215Y; ~~M41L / D67N / K70R / T215Y;~~ M41L / D67N / K70R / M184V / T215Y; M41L / D67N / K70R / M184V / L210W / R211K / L214F / T215Y; T69S-SS; T69S-SG; T69S-AG; and T69S-SS / T215Y, wherein said numbering scheme is based upon the prototypical isolate HIV-1_{BH-10},

wherein said [[HIV]]HIV-1 RT enzyme incorporates the at least one detectable dNTP substrate or the at least one [[HIV]]HIV-1 RT inhibitor into said template;

c) determining RT activity by measuring the amount of the detectable dNTP substrate incorporated into the template;

d) repeating steps a) through c) in a new reaction well wherein the [[HIV]]HIV-1 RT enzyme of step b) is chosen from at least one mutant RT enzyme;

e) comparing the RT activity in the different reaction wells; and

f) determining the effect of the at least one mutation on the resistance of [[HIV]]HIV-1 to ~~an HIV RT inhibitor~~ AZT using step e);

wherein the effect of at least one mutation in an [[HIV]]HIV-1 RT enzyme on the ~~resistance of HIV~~ resensitization of HIV-1 to ~~an HIV RT inhibitor~~AZT can be determined.

21. (Currently amended) A method for rapid screening the effects of mutations on ~~HIV resistance~~ resensitization of HIV-1 to ~~an HIV RT inhibitor~~AZT, comprising:

a) providing an array of reaction wells, each reaction well with the ~~reaction products of substances~~ following reaction components comprising:

i) at least one template for an [[HIV]]HIV-1 RT enzyme[[,]];

ii) at least one primer[[,]];

iii) at least one detectable dNTP substrate[[,]];

iv) ~~at least one HIV RT inhibitor~~AZT[[,]]; and

v.) at least one ribonucleotide chosen from ATP or GTP, or at least one pyrophosphate;

b) performing an enzymatic kinetics assay that permits the measurement of multiple chain termination events by adding to each reaction well a different [[HIV]]HIV-1 RT enzyme chosen from a wild-type RT enzyme or a mutant RT enzyme, and a mutant selected from the group consisting of ~~M41L / T215Y;~~ M41L / M184V / T215Y; ~~M41L / D67N / K70R / T215Y;~~ M41L / D67N / K70R / M184V / T215Y; M41L / D67N / K70R / M184V / L210W / R211K / L214F / T215Y; T69S-SS; T69S-SG; T69S-AG; and T69S-SS / T215Y, wherein said numbering scheme is based upon the prototypical isolate HIV-1_{BH-10},

wherein said [[HIV]]HIV-1 RT enzyme incorporates the at least one detectable dNTP substrate or the ~~at least one HIV RT inhibitor~~AZT into said template and wherein at least one wild-type RT enzyme is added to at least one reaction well;

c) determining RT activity in each reaction well by measuring the amount of the detectable dNTP substrate incorporated into the template; and

d) determining the effect of mutations on ~~HIV resistance~~ resensitization of HIV-1 of the ~~HIV RT inhibitor~~AZT by comparing the RT activity of at least one wild-type RT enzyme with the RT activity of at least one mutant RT enzyme;

wherein the rapid screening the effects of mutations on ~~HIV resistance~~ resensitization of HIV-1 to ~~an HIV RT inhibitor~~AZT is determined.